

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

IN RE APPLICATION OF: Jan ARWALD, et al.

SERIAL NUMBER: NEW U.S. PCT APPLICATION (based on PCT/SE99/01830)

FILED: HERewith

FOR: METHOD, SYSTEM AND DEVICE FOR ESTABLISHING COMMUNICATION
BETWEEN DIFFERENT COMMUNICATION NETWORKS

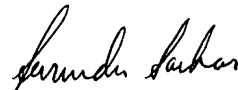
**REQUEST FOR CONSIDERATION OF DOCUMENTS
CITED IN INTERNATIONAL SEARCH REPORT**

Assistant Commissioner for Patents
Washington, D.C. 20231

Sir:

In the matter of the above-identified application for patent, notice is hereby given that applicant(s) request that the Examiner consider the documents cited in the International Search Report according to MPEP §609 and so indicate by a statement in the first Office Action that the information has been considered. When the Form PCT/DO/EO/903 indicates both the search report and copies of the documents are present in the national stage file, there is no requirement for the applicant(s) to submit them (1156 O.G. 91 November 23, 1993).

Respectfully submitted,
OBLON, SPIVAK, McCLELLAND,
MAIER & NEUSTADT, P.C.



Marvin J. Spivak
Attorney of Record
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22850

DOCKET NO.: 205409US2PCT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

IN RE APPLICATION OF: Jan ARWALD, et al.

SERIAL NO.: NEW U.S. PCT APPLICATION

FILED: HEREWITH

INTERNATIONAL APPLICATION NO.: PCT/SE99/01830

INTERNATIONAL FILING DATE: 11 October 1999

FOR: METHOD, SYSTEM AND DEVICE FOR ESTABLISHING COMMUNICATION
BETWEEN DIFFERENT COMMUNICATION NETWORKS

REQUEST FOR PRIORITY UNDER 35 U.S.C. 119(e)
AND THE INTERNATIONAL CONVENTION

Assistant Commissioner for Patents
Washington, D.C. 20231

Sir:

In the matter of the above-identified application for patent, notice is hereby given that the applicant claims as priority:

<u>COUNTRY</u>	<u>APPLICATION NO.</u>	<u>DAY/MONTH/YEAR</u>
UNITED STATES	60/141,004	29 June 1999

A certified copy of the corresponding Convention application(s) was submitted to the International Bureau in PCT Application No. **PCT/SE99/01830**. Receipt of the certified copy(s) by the International Bureau in a timely manner under PCT Rule 17.1(a) has been acknowledged as evidenced by the attached PCT/IB/304.

Respectfully submitted,
OBLON, SPIVAK, McCLELLAND,
MAIER & NEUSTADT, P.C.



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(OSMMN 1/97)

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference Case 709 PCT	FOR FURTHER ACTION see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.	
International application No. PCT/SE 99/01830	International filing date (<i>day/month/year</i>) 11 October 1999	(Earliest) Priority Date (<i>day/month/year</i>) 12 October 1998
Applicant Telia AB (publ) et al		

This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 3 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

1. ☐ Certain claims were found unsearchable (See Box I).

2. ☐ Unity of invention is lacking (See Box II).

3. ☐ The international application contains disclosure of a **nucleotide and/or amino acid sequence listing** and the international search was carried out on the basis of the sequence listing

☐ filed with the international application.

☐ furnished by the applicant separately from the international application,

☐ but not accompanied by a statement to the effect that it did not include matter going beyond the disclosure in the international application as filed.

☐ transcribed by this Authority.

4. With regard to the title, ☒ the text is approved as submitted by the applicant.

☐ the text has been established by this Authority to read as follows:

5. With regard to the abstract,

☒ the text is approved as submitted by the applicant.

☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the drawings to be published with the abstract is:

Figure No. 2 ☐ as suggested by the applicant.

☐ because the applicant failed to suggest a figure.

☒ because this figure better characterizes the invention.

☐ None of the figures.

1
INTERNATIONAL SEARCH REPORT

International application No.

PCT/SE 99/01830

A. CLASSIFICATION OF SUBJECT MATTER

IPC7: H04L 12/66

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC7: H04L, H04Q

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

SE,DK,FI,NO classes as above

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5239662 A (ARVIN D. DANIELSSON ET AL), 24 August 1993 (24.08.93), column 4, line 10 - column 5, line 51; column 13, line 15 - line 30, figures 3,5, claim 1	1-2,8-10, 16-18,20-21, 32
Y	--	3-7,11-15, 19,22-31
Y	WO 98/37724 A2 (TELEFONAKTIEBOLAGET LM ERICSSON), 27 August 1998 (27.08.98), page 8, line 19 - page 14, line 23, claim 13, abstract	3-7,11-15, 19,22-31
A	--	1-2,8-10, 16-18,20-21, 32

☒ Further documents are listed in the continuation of Box C.

☒ See patent family annex.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"I" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance: the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance: the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search

22 June 2000

Date of mailing of the international search report

27 -06- 2000

Name and mailing address of the ISA

Swedish Patent Office
Box 5055, S-102 42 STOCKHOLM

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Authorized officer

RICKARD ELG/EE

Telephone No. +46 8 782 25 00

INTERNATIONAL SEARCH REPORT

International application No.

PCT/SE 99/01830

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	EP 0758824 A1 (HONEYWELL INC.), 19 February 1997 (19.02.97), column 4, line 43 - column 5, line 11, figure 1 -- -----	1-32

INTERNATIONAL SEARCH REPORT

Information on patent family members

02/12/99

International application No.

PCT/SE 99/01830

Patent document cited in search report			Publication date	Patent family member(s)	Publication date
US	5239662	A	24/08/93	US 4972463 A	20/11/90
WO	98/37724	A2	27/08/98	NONE	
EP	0758824	A1	19/02/97	CA 2182355 A	16/02/97
				US 5691984 A	25/11/97

PATENT COOPERATION TREATY

PCT

NOTIFICATION CONCERNING
SUBMISSION OR TRANSMITTAL
OF PRIORITY DOCUMENT

(PCT Administrative Instructions, Section 411)

To:

PRAGSTEN, Rolf
Telia Research AB
Vitsandsgatan 9
S-123 86 Farsta
SUEDEInkom Kgp
Telia Research AB

2000 -01- 24

Date of mailing (day/month/year) 17 January 2000 (17.01.00)	IMPORTANT NOTIFICATION
Applicant's or agent's file reference Case 709 PCT	
International application No. PCT/SE99/01830	International filing date (day/month/year) 11 October 1999 (11.10.99)
International publication date (day/month/year) Not yet published	Priority date (day/month/year) 12 October 1998 (12.10.98)
Applicant TELIA AB (publ) et al	

- The applicant is hereby notified of the date of receipt (except where the letters "NR" appear in the right-hand column) by the International Bureau of the priority document(s) relating to the earlier application(s) indicated below. Unless otherwise indicated by an asterisk appearing next to a date of receipt, or by the letters "NR", in the right-hand column, the priority document concerned was submitted or transmitted to the International Bureau in compliance with Rule 17.1(a) or (b).
- This updates and replaces any previously issued notification concerning submission or transmittal of priority documents.
- An asterisk(*) appearing next to a date of receipt, in the right-hand column, denotes a priority document submitted or transmitted to the International Bureau but not in compliance with Rule 17.1(a) or (b). In such a case, **the attention of the applicant is directed** to Rule 17.1(c) which provides that no designated Office may disregard the priority claim concerned before giving the applicant an opportunity, upon entry into the national phase, to furnish the priority document within a time limit which is reasonable under the circumstances.
- The letters "NR" appearing in the right-hand column denote a priority document which was not received by the International Bureau or which the applicant did not request the receiving Office to prepare and transmit to the International Bureau, as provided by Rule 17.1(a) or (b), respectively. In such a case, **the attention of the applicant is directed** to Rule 17.1(c) which provides that no designated Office may disregard the priority claim concerned before giving the applicant an opportunity, upon entry into the national phase, to furnish the priority document within a time limit which is reasonable under the circumstances.

<u>Priority date</u>	<u>Priority application No.</u>	<u>Country or regional Office or PCT receiving Office</u>	<u>Date of receipt of priority document</u>
12 Octo 1998 (12.10.98)	9803503-3	SE	07 Janu 2000 (07.01.00)
29 June 1999 (29.06.99)	60/141,004	US	NR

The International Bureau of WIPO
34, chemin des Colombettes
1211 Geneva 20, Switzerland

Facsimile No. (41-22) 740.14.35

Authorized officer

F. Zotomayor

Telephone No. (41-22) 338.83.38

From the INTERNATIONAL BUREAU

PCT

NOTICE INFORMING THE APPLICANT OF THE
COMMUNICATION OF THE INTERNATIONAL
APPLICATION TO THE DESIGNATED OFFICES

(PCT Rule 47.1(c), first sentence)

To: PRAGSTEN, Rolf
Telia Research AB
Vitsandsgatan 9
S-123 86 Farsta
SUÈDEInkcm Kgp
Telia Research AB

2000 -04- 2 8

Date of mailing (day/month/year)
20 April 2000 (20.04.00)Applicant's or agent's file reference
Case 709 PCT

IMPORTANT NOTICE

International application No.
PCT/SE99/01830International filing date (day/month/year)
11 October 1999 (11.10.99)Priority date (day/month/year)
12 October 1998 (12.10.98)Applicant
TELIA AB (publ) et al

1. Notice is hereby given that the International Bureau has communicated, as provided in Article 20, the international application to the following designated Offices on the date indicated above as the date of mailing of this Notice:
JP,US

In accordance with Rule 47.1(c), third sentence, those Offices will accept the present Notice as conclusive evidence that the communication of the international application has duly taken place on the date of mailing indicated above and no copy of the international application is required to be furnished by the applicant to the designated Office(s).

2. The following designated Offices have waived the requirement for such a communication at this time:
EE,EP,LT,LV,NO

The communication will be made to those Offices only upon their request. Furthermore, those Offices do not require the applicant to furnish a copy of the international application (Rule 49.1(a-bis)).

3. Enclosed with this Notice is a copy of the international application as published by the International Bureau on
20 April 2000 (20.04.00) under No. WO 00/22789

REMINDER REGARDING CHAPTER II (Article 31(2)(a) and Rule 54.2)

If the applicant wishes to postpone entry into the national phase until 30 months (or later in some Offices) from the priority date, a demand for international preliminary examination must be filed with the competent International Preliminary Examining Authority before the expiration of 19 months from the priority date.

It is the applicant's sole responsibility to monitor the 19-month time limit.

Note that only an applicant who is a national or resident of a PCT Contracting State which is bound by Chapter II has the right to file a demand for international preliminary examination.

REMINDER REGARDING ENTRY INTO THE NATIONAL PHASE (Article 22 or 39(1))

If the applicant wishes to proceed with the international application in the national phase, he must, within 20 months or 30 months, or later in some Offices, perform the acts referred to therein before each designated or elected Office.

For further important information on the time limits and acts to be performed for entering the national phase, see the Annex to Form PCT/IB/301 (Notification of Receipt of Record Copy) and Volume II of the PCT Applicant's Guide.

The International Bureau of WIPO
34, chemin des Colombettes
1211 Geneva 20, Switzerland

Authorized officer

J. Zahra

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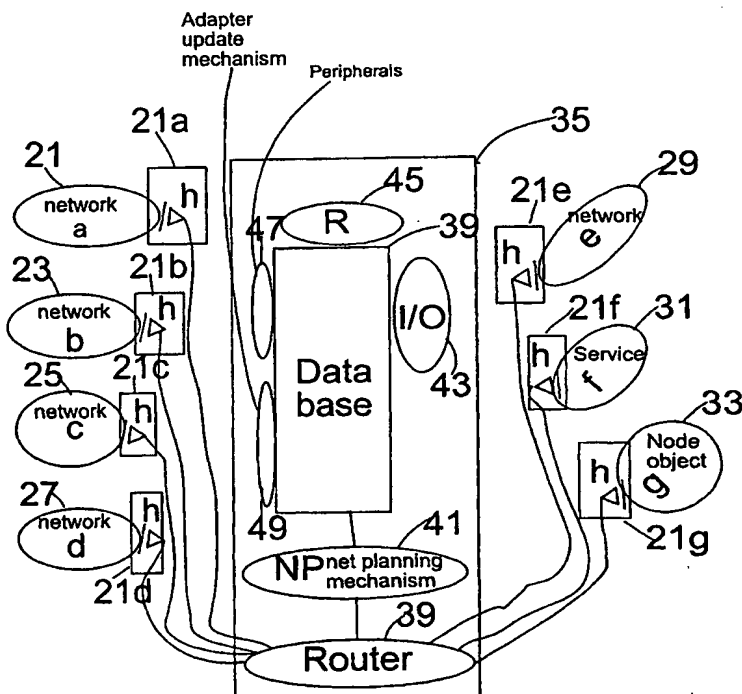
INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification ⁷ : H04L 12/66		A2	(11) International Publication Number: WO 00/22789
			(43) International Publication Date: 20 April 2000 (20.04.00)
(21) International Application Number: PCT/SE99/01830 (22) International Filing Date: 11 October 1999 (11.10.99) (30) Priority Data: 9803503-3 12 October 1998 (12.10.98) SE 60/141,004 29 June 1999 (29.06.99) US (71) Applicant (for all designated States except US): TELIA AB (publ) [SE/SE]; Mårbackagatan 11, S-123 86 Farsta (SE). (72) Inventors; and (75) Inventors/Applicants (for US only): ARWALD, Jan [SE/SE]; V. Skrävlingevägen 93, S-212 34 Malmö (SE). HAGBARD, Stefan [SE/SE]; Tykövägen 10, S-181 61 Lidingö (SE). ANDERSSON, Sten [SE/SE]; Bryggaregatan 12, S-277 36 Lund (SE). ERHULT, Margareta [SE/SE]; Vallavägen 7, S-136 41 Haninge (SE). (74) Agent: PRAGSTEN, Rolf; Telia Research AB, Vitsandsgatan 9, S-123 86 Farsta (SE).			(81) Designated States: EE, JP, LT, LV, NO, US, European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE). Published Without international search report and to be republished upon receipt of that report.

(54) Title: METHOD, SYSTEM AND DEVICE FOR ESTABLISHING COMMUNICATION BETWEEN DIFFERENT COMMUNICATION NETWORKS

(57) Abstract

A method, system and device for communication establishes communications sessions between otherwise incompatible communication networks. A central unit is used to facilitate communication systems between objects, by referring to a database of communication attributes associated with different communication networks used by a calling part and a called party. Rather than have direct connections from one communication network to a next communication network, and having unique translators to support such direct connections, each of the communications is directed to a central facility, that identifies common protocols that are supported by the different communication networks to be employed when establishing a communication session between a first communication network and a second communication network. Included at the central facility is a database having subscriber information, and a network number associated with a subscriber, where the network number has associated therewith different communication numbers assigned to that subscriber in the different communication networks at which the subscriber may be located.



FOR THE PURPOSES OF INFORMATION ONLY

Codes used to identify States party to the PCT on the front pages of pamphlets publishing international applications under the PCT.

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EE	Estonia	LR	Liberia	SG	Singapore		

Claims:

1. A communication device, comprising:

a central controller configured to establish a communication session between a first object and a second object, said first object employing a first communication protocol used in establishing a communication session with said central controller, said first object having a first adapter configured to translate between another protocol that is native to said first object and said first protocol, said second object having a second adapter, said second object employing a second communication protocol that is not compatible with said another communication protocol, wherein

said central controller including a protocol coordination mechanism that compares attributes of different protocols supported by said first adapter and said second adapter when establishing the communication session between the first object and the second object.

2. The device according to Claim 1, wherein said central controller includes a router that is configured to receive information from said first adapter and to coordinate said communication session between said first object and said second object.

3. The device according to Claim 1, wherein:

said central controller includes a database having a list of subscribers with associated calling numbers in said database, said database hosting information associated with the calling numbers for different objects to which the subscribers belong.

4. The device according to Claim 1, wherein said central controller comprises a router that is configured to provide an interface between the first adapter and the second adapter; and

a database configured to hold a list of subscribers and calling numbers of the subscribers, wherein

said central controller being configured to access information in said database regarding services to be invoked when establishing said communication session between said first object and said second object and sending from said router control signals to at least one of the first adapter and the second adapter so as to establish a protocol to be employed by the

first adapter and the second adapter, when communicating during said communication session.

5. The device according to Claim 3, wherein:

5 entries in said list of subscribers in said database being changed when said central controller is notified of a subscriber moving from one object affiliation to another; and new information associated with a movement of the subscriber, being employed to establish said communication session at a present object associated with said subscriber such that a change in calling numbers by said first object is not required in order to establish the communication session with the subscriber.

10 6. The device according to Claim 1, wherein said central controller includes a database having database entries that associate various calling numbers for a particular subscriber with an object and a net number for said subscriber.

15 7. The device according to Claim 6, wherein said database is configured to associate one calling number included in a call request for a specific subscriber with a net number and another calling number at which said subscriber is available.

8. The communication device of Claim 1, wherein said first object being one of a mobile telephone network, a wire-based telecommunication network, a cable television network, an Ethernet, and an electrical distribution network.

9. A communication system, comprising:

20 a first adapter configured to translate between a native protocol used in a first object and a general protocol;

a central controller configured to communicate with said first adapter using said general protocol; and

25 a second adapter configured to establish a coordination session between said central controller and a second object, said second object employing another native protocol that is not compatible with said native protocol used by said first object, wherein

said central controller configured to establish a communication link between said first

object and said second object.

10. The system according to Claim 9, wherein said central controller includes a router that is configured to receive information from said first adapter and for coordinating said communication session between said first object and said second object.

5 11. The system according to Claim 9, wherein:

said central controller includes a database having a list of subscribers with associated calling numbers in said database, said database hosting information associated with the calling numbers, different objects to which the subscribers belong.

12. The system according to Claim 9, wherein:

10 said central controller comprises a router that is configured to provide an interface between the first adapter and the second adapter; and

a database configured to hold a list of subscribers and calling numbers of the subscribers, wherein:

15 said central controller being configured to access information in said database regarding services to be invoked when establishing said communication session between said first object and said second object and sending from said router control signals to at least one of the first adapter and the second adapter so as to establish a protocol to be employed by the first adapter and the second adapter, when communicating during said communication session.

20 13. The system according to Claim 9, wherein:

entries in said list of subscribers in said database being changed when said central controller is notified of a subscriber moving from one object affiliation to another; and

25 new information associated with a movement of the subscriber, being employed to establish said communication session at a present object associated with said subscriber such that a change in calling numbers by said first object is not required in order to establish the communication session with the subscriber.

14. The system according to Claim 9, wherein said central controller includes a

database having database entries that associate various calling numbers for a particular subscriber with an object and a net number for said subscriber.

15. The system according to Claim 9, wherein said database is configured to associate one calling number included in a call request for a specific subscriber with a net
5 number and another calling number at which said subscriber is available.

16. The system of Claim 9, wherein said first object being one of a mobile telephone network, a wire-based telecommunication network, a cable television network, an Ethernet, and an electrical distribution network.

17. A method for communicating between objects employing incompatible
10 communication protocols, comprising steps of:

sending coordination information from a first adapter associated with a first object to a central controller, including translating at said first adapter information formatted in a native protocol used in a first object to a general protocol;

receiving said coordination information at a central controller;

15 identifying at said central controller communication attributes of said first adapter and said first object and attributes associated with a second object having associated therewith a second adapter and another native protocol that is not compatible with the native protocol of said first object;

20 coordinating between said central controller, said first adapter and said second adapter substeps of

translating information sent from said first object in said native protocol, and

receiving said information at said second object in said another protocol.

18. The method according to Claim 17, wherein said sending step and said receiving
25 step includes sending said coordination information and receiving said coordination information when said coordinating information is formatted in a predetermined protocol that is different than said native protocol.

19. The method according to Claim 17, wherein said coordinating step includes

establishing at said central controller whether said first adapter and said second adapter perform said step of translating information exclusively, and determining whether an intermediate translating step is required.

5 20. The method according to Claim 17 wherein said coordinating step includes directing said first adapter and said second adapter to translate said information into a predetermined protocol that is different from said native protocol and said another protocol.

 21. The method according to Claim 20, wherein said translating step includes translating said information exclusively in said first adapter and said second adapter, and not in said central controller.

10 22. The method according to Claim 17, further comprising steps of:
 determining whether a activity in the first object requires communication outside of said object and initiating said sending step when said activity takes place outside of said first object.

 23. The method according to Claim 22, wherein:
15 said coordinating step includes contacting the second object and translating the information into a format that is a format supported by the second adapter for translating the format into the another protocol.

 24. The method according to Claim 17 further comprising:
 establishing a profile for a connection for a communication session between the first
20 object and the second object so as to streamline future coordination for future communication sessions.

 25. The method according to Claim 24, wherein:
 said first object establishes a second object in which services for the communication session will be used.

25 26. The method according to Claim 17, wherein:

said coordinating step is performed in a protocol coordination mechanism that handles and registers rules and conditions for communicating between the first object and second object.

27. The method according to Claim 26, further comprising:

5 establishing at said protocol coordination mechanism a service to be used, according to a user profile stored in a data base associated with a connection to be made.

28. The method according to Claim 27, wherein said coordinating step includes identifying specific rules for each of the first object and the second object.

29. The method according to Claim 20, wherein:

10 said coordinating step includes indicating conditions for linking the first object and the second object by considering available factors including at least one of required channel distributions, requisite protocol translation operations, and cost in income distribution between the first object and the second object.

15 30. The method according to Claim 29, wherein said coordinating step includes registering agreements and conditions that are mutually agreed upon between the first object and the second object.

31. The method according to Claim 17, wherein said receiving step includes receiving said coordination information at the central controller wherein said central being accessible to each object for other objects in addition to the first object and the second object.

20 32. A system for communicating between objects employing incompatible communication protocols, comprising:

 means for preparing coordination information at a first adapter associated with a first object, including means for translating information formatted in a native protocol used in a first object to a general protocol;

25 central controller means for receiving said coordination information and identifying communication attributes of said first adapter and said first object and attributes associated

with a second object having associated therewith a second adapter and another native protocol that is not compatible with the native protocol of said first object; and

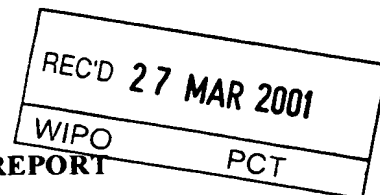
means for coordinating translation of information sent from said first object in said native protocol, and receiving said information at said second object in said another protocol.

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)



4

Applicant's or agent's file reference Case 709 PCT	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/SE99/01830	International filing date (day/month/year) 11-10-1999	Priority date (day/month/year) 12-10-1998
International Patent Classification (IPC) or national classification and IPC ⁷ H04L 12/66		
Applicant Telia AB (publ) et al.		

- This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
- This REPORT consists of a total of 4 sheets, including this cover sheet.
☒ This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of 6 sheets.

- This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☐ Certain observations on the international application

Date of submission of the demand 10.05.2000	Date of completion of this report 19.03.2001
Name and mailing address of the IPEA/SE Patent- och registreringsverket Box 5055 S-102 42 STOCKHOLM Facsimile No. 08-667 72 88	Authorized officer Rickard Elg/LR Telephone No. 08-782 25 00

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/SE99/01830

I. Basis of the report

1. With regard to the elements of the international application:*

- ☐ the international application as originally filed
- ☒ the description:
pages 1-21, as originally filed
pages _____, filed with the demand
pages _____, filed with the letter of _____
- ☒ the claims:
pages _____, as originally filed
pages _____, as amended (together with any statement) under article 19
pages _____, filed with the demand
pages 1-6, filed with the letter of 20.12.2000
- ☒ the drawings:
pages 1-6, as originally filed
pages _____, filed with the demand
pages _____, filed with the letter of _____
- ☐ the sequence listing part of the description:
pages _____, as originally filed
pages _____, filed with the demand
pages _____, filed with the letter of _____

2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language _____ which is:

- ☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of the translation furnished for the purposes of international preliminary examination (under Rules 55.2 and/or 55.3).

3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. ☐ The amendments have resulted in the cancellation of:

- ☐ the description, pages _____
- ☐ the claims, Nos. _____
- ☐ the drawings, sheet/fig _____

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2 (c)).**

* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are annexed to this report since they do not contain amendments (Rules 70.16 and 70.17).

** Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/SE99/01830

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	<u>1-27</u>	YES
	Claims	_____	NO
Inventive step (IS)	Claims	<u>1-27</u>	YES
	Claims	_____	NO
Industrial applicability (IA)	Claims	<u>1-27</u>	YES
	Claims	_____	NO

2. Citations and explanations (Rule 70.7)

The invention relates to the establishment of a communication session between non-compatible networks and to make services in one network available to the other network. This is made possible by introducing a central controller with adapters between the networks. The central controller comprises a router and a database. The database hosts information associated with the subscribers. When a call is initiated to a subscriber, the central controller identifies the type of communication that is being requested and determines what type of connection is to be established.

The following documents have been cited in the International Search Report:

D1: US, A, 5239662
D2: WO, A2, 9837724
D3: EP, A1, 0758824

In the Written Opinion, the claimed invention was considered to lack novelty/inventive step in view of D1 and D2. The authority have changed its opinion regarding novelty and non-obviousness of the invention, due to the arguments and the new claims put forth in response to the Written Opinion. Former claims 1, 3 and 8 have been merged into new claim 1. New claim 7 is a combination of former claims 9, 11 and 16. New claim 13 is a combination of former claims 17 and 19.

Hence, it is not considered obvious to a person skilled in the art to arrive at the invention claimed in new claims 1-27 departing from any one, or any combination of documents D1-D3. The invention claimed in new claims 1-27 is novel and shows industrial applicability.

.../...

Supplemental Box

(To be used when the space in any of the preceding boxes is not sufficient)

Continuation of: V

For the sake of completeness, prior art documents D1-D3 are briefly discussed:

Document D1 discloses a method for establishing communication between not compatible networks. The central controller communicates with the different networks through a common protocol. Each network comprises an adapter, which translates the protocol of the network to the common protocol for communicating with the central controller. When translation needed between the protocols used by the networks, instructions from the central controller are sent. The central controller may route the information to the respective end-points (claim 1; fig. 3; col. 4, line 10 - col. 5, line 51 and col. 13, lines 15-30).

Document D2 describes a system comprising central unit, which enables communication between not compatible networks. The unit comprises a database (250, SDLA), which hosts information associated with the subscribers, and an administrative node (260, SMCF; page 10, line 10-21 and page 17, lines 5-6). Each network comprises a module (Traffic Control and Routing, TCR) for routing the traffic in the network. The TCR controls the interaction of different layers of network communication protocols and interacts with other networks via IWF (Interworking Functions) (page 8, lines 19-29). The user profile, which is being stored in a sub-database (310), comprises different information associated with the user (page 11, line 29 - page 12, line 9). The central unit provides centralised information sharing, data control and network resource management across the plurality of associated communications networks (abstract; CM, claim 13). Channel Management, CM, allocates, controls, and reconciles the utilisation of shared network resources (page 14, lines 16-23). The central unit handles and registers certain rules for communication between different networks and utilisation of network resources in the different networks (page 10, lines 10-21; page 12, lines 1-9; page 14, lines 20-23). Mobility, resource allocation and routing between networks are made possible through SDLA and SMCF.

D3 describes a brouting switch that allows communication between external systems with differing protocols. (see abstract and fig.1)

The Swedish Patent Office
PCT International Application

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Claims:

1. A communication device, comprising:

a central controller configured to establish a communication session between a first object and a second object, said first object employing a first communication protocol used in establishing a communication session with said central controller, said first object having a first adapter configured to translate between another protocol that is native to said first object and said first protocol, said second object having a second adapter, said second object employing a second communication protocol that is not compatible with said another communication protocol, wherein

said central controller including a protocol coordination mechanism that compares attributes of different protocols supported by said first adapter and said second adapter when establishing the communication session between the first object and the second object said central controller includes a database having a list of subscribers with associated calling numbers in said database, said database hosting information associated with the calling numbers for different objects to which the subscribers belong wherein said first object being one of a mobile telephone network, a wire-based telecommunication network, a cable television network, an Ethernet, and an electrical distribution network.

2. The device according to Claim 1, wherein said central controller includes a router that is configured to receive information from said first adapter and to coordinate said communication session between said first object and said second object.

3. The device according to Claim 1, wherein said central controller comprises a router that is configured to provide an interface between the first adapter and the second adapter; and

a database configured to hold a list of subscribers and calling numbers of the subscribers, wherein

said central controller being configured to access information in said database regarding services to be invoked when establishing said communication session between said first object and said second object and sending from said router control signals to at least one of the first adapter and the second adapter so as to establish a protocol to be employed by the first adapter and the second adapter, when communicating during said communication session.

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4. The device according to Claim 1, wherein:

entries in said list of subscribers in said database being changed when said central controller is notified of a subscriber moving from one object affiliation to another; and new information associated with a movement of the subscriber, being employed to establish said communication session at a present object associated with said subscriber such that a change in calling numbers by said first object is not required in order to establish the communication session with the subscriber.

5. The device according to Claim 1, wherein said central controller includes a database having database entries that associate various calling numbers for a particular subscriber with an object and a net number for said subscriber.

6. The device according to Claim 5, wherein said database is configured to associate one calling number included in a call request for a specific subscriber with a net number and another calling number at which said subscriber is available.

7. A communication system, comprising:

a first adapter configured to translate between a native protocol used in a first object and a general protocol;

a central controller configured to communicate with said first adapter using said general protocol; and

a second adapter configured to establish a coordination session between said central controller and a second object, said second object employing another native protocol that is not compatible with said native protocol used by said first object, wherein

said central controller configured to establish a communication link between said first object and said second object said central controller includes a database having a list of subscribers with associated calling numbers in said database, said database hosting information associated with the calling numbers, different objects to which the subscribers belong said first object being one of a mobile telephone network, a wire-based telecommunication network, a cable television network, an Ethernet, and an electrical distribution network.

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8. The system according to Claim 7, wherein said central controller includes a router that is configured to receive information from said first adapter and for coordinating said communication session between said first object and said second object.

9. The system according to Claim 7, wherein:

said central controller comprises a router that is configured to provide an interface between the first adapter and the second adapter; and

a database configured to hold a list of subscribers and calling numbers of the subscribers, wherein:

said central controller being configured to access information in said database regarding services to be invoked when establishing said communication session between said first object and said second object and sending from said router control signals to at least one of the first adapter and the second adapter so as to establish a protocol to be employed by the first adapter and the second adapter, when communicating during said communication session.

10. The system according to Claim 7, wherein:

entries in said list of subscribers in said database being changed when said central controller is notified of a subscriber moving from one object affiliation to another; and
new information associated with a movement of the subscriber, being employed to establish said communication session at a present object associated with said subscriber such that a change in calling numbers by said first object is not required in order to establish the communication session with the subscriber.

11. The system according to Claim 7, wherein said central controller includes a database having database entries that associate various calling numbers for a particular subscriber with an object and a net number for said subscriber.

12. The system according to Claim 7, wherein said database is configured to associate one calling number included in a call request for a specific subscriber with a net number and another calling number at which said subscriber is available.

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13. A method for communicating between objects employing incompatible communication protocols, comprising steps of:

sending coordination information from a first adapter associated with a first object to a central controller, including translating at said first adapter information formatted in a native protocol used in a first object to a general protocol;

receiving said coordination information at a central controller;

identifying at said central controller communication attributes of said first adapter and said first object and attributes associated with a second object having associated therewith a second adapter and another native protocol that is not compatible with the native protocol of said first object;

coordinating between said central controller, said first adapter and said second adapter sub steps of

translating information sent from said first object in said native protocol, and

receiving said information at said second object in said another protocol.

14. The method according to Claim 13, wherein said sending step and said receiving step includes sending said coordination information and receiving said coordination information when said coordinating information is formatted in a predetermined protocol that is different than said native protocol wherein said coordinating step includes establishing at said central controller whether said first adapter and said second adapter perform said step of translating information exclusively, and determining whether an intermediate translating step is required.

15. The method according to Claim 13 wherein said coordinating step includes directing said first adapter and said second adapter to translate said information into a predetermined protocol that is different from said native protocol and said another protocol.

16. The method according to Claim 15, wherein said translating step includes translating said information exclusively in said first adapter and said second adapter, and not in said central controller.

17. The method according to Claim 13, further comprising steps of:

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determining whether a activity in the first object requires communication outside of said object and initiating said sending step when said activity takes place outside of said first object.

18. The method according to Claim 17, wherein:

said coordinating step includes contacting the second object and translating the information into a format that is a format supported by the second adapter for translating the format into the another protocol.

19. The method according to Claim 13 further comprising:

establishing a profile for a connection for a communication session between the first object and the second object so as to streamline future coordination for future communication sessions.

20. The method according to Claim 19, wherein:

said first object establishes a second object in which services for the communication session will be used.

21. The method according to Claim 13, wherein:

said coordinating step is performed in a protocol coordination mechanism that handles and registers rules and conditions for communicating between the first object and second object.

22. The method according to Claim 21, further comprising:

establishing at said protocol coordination mechanism a service to be used, according to a user profile stored in a data base associated with a connection to be made.

23. The method according to Claim 22, wherein said coordinating step includes identifying specific rules for each of the first object and the second object.

24. The method according to Claim 15, wherein:

said coordinating step includes indicating conditions for linking the first object and the second object by considering available factors including at least one of required

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channel distributions, requisite protocol translation operations, and cost in income distribution between the first object and the second object.

25. The method according to Claim 24, wherein said coordinating step includes registering agreements and conditions that are mutually agreed upon between the first object and the second object.

26. The method according to Claim 13, wherein said receiving step includes receiving said coordination information at the central controller wherein said central being accessible to each object for other objects in addition to the first object and the second object.

27. A system for communicating between objects employing incompatible communication protocols, comprising:

means for preparing coordination information at a first adapter associated with a first object, including means for translating information formatted in a native protocol used in a first object to a general protocol;

central controller means for receiving said coordination information and identifying communication attributes of said first adapter and said first object and attributes associated with a second object having associated therewith a second adapter and another native protocol that is not compatible with the native protocol of said first object; and

means for coordinating translation of information sent from said first object in said native protocol, and receiving said information at said second object in said another protocol.

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